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ABSTRACT

The peer acceptance and self perceived status of 16 elementary grade students with moderate, severe and profound hearing impairments enrolled in regular public school classrooms were examined. Eleven Ss comprised a longitudinal sample and were in the fourth, fifth, and sixth grade at the time of the follow-up study; five Ss were in first grade. Three sociometric tests were administered to the longitudinally studied and first grade hearing impaired children and their classmates to assess both peer acceptance and self-perceived status. Results indicated that these hearing impaired children were as accepted as their normally hearing peers. However, the first grade Ss with impaired hearing scored higher than the longitudinal group on all measures. All of the Ss were perceptive of their own social status. (Included is a summary of cross sectional and longitudinal data, a teacher questionnaire, and implications for preschool programing.) (Author/SB)

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RESULTS OF A FOLLOW-UP SOCIOMETRIC RESEARCH STUDY AND SUMMARY OF LONGITUDINAL AND CROSS SECTIONAL DATA ON HEARING IMPAIRED CHILDREN ENROLLED IN REGULAR CLASSROOMS

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Introduction

A healthy self concept evolving during the early years of life is critical for the psychosocial development of all children. The family, the neighborhood and especially the schools attempt to provide opportunities for children to find their place within a group and to acquire the tools necessary for mature social relations - acceptance and empathy for others.

The extent to which hearing impaired children may successfully accomplish these goals appears to be dependent upon six factors:

1. early identification, amplification; intact neurological functioning; early educational intervention in a preschool program whose primary emphasis is upon developing listening skills and parent participation.
2. stimulating and supportive home environments.
3. functional language skills to communicate with family, peers and other significant adults.
4. early integration into neighborhood nursery school.
5. understanding the social mores of the peer group.
6. appropriate support services based on the individual needs of the child upon assimilation into the regular classroom.

Although the integration of children with hearing handicaps into elementary classrooms with normally hearing peers is one of the major thrusts of comprehensive special education planning in the United States today (Northcott, 1973), little information presently exists about the degree of their social acceptance by or their social-behavioral interactions with nonhandicapped peers (Kennedy and Bruininks, 1974; McCauley, Bruininks, and Kennedy, 1975). Yet such data would be valuable in evaluating the effectiveness of current programs as well as

planning intervention strategies to insure that attempts to provide physical integration would be accompanied by psychosocial acceptance and appropriate relations with age mates (Kennedy, 1975).

The few reported sociometric studies of hearing impaired children have posited mixed results (Elsner, 1958; Force, 1956; Justman and Maskowitz, 1957; and O'Connor, 1961; Kennedy and Bruininks, 1974). Data from the earlier studies revealed that hearing impaired children were not as socially accepted as their normally hearing peers and often occupied a position of neutrality in the classroom rather than one of overt rejection. The subjects of the earlier studies were children ages 9 to 17 who had moderate to severe hearing losses, and generalizations about social acceptance were sometimes made on as few as six subjects.

However, Kennedy and Bruininks (1974) found that pupils with severe to profound hearing losses who had experienced a structured preschool education (before age 4) with parent involvement and nursery school experience with neighborhood peers as well as early integration into public school kindergarten or first grade classes, gained a degree of social acceptance which was inconsistent with the level reported in the earlier studies.

Results from three sociometric measures indicated that the children with severe to profound losses were more accepted than those with moderate losses and in four instances were among the most popular children in their classrooms. Furthermore, the hearing impaired children were as perceptive as their normally hearing classmates in estimating their own social status.

At the conclusion of the 1972 school year it was decided to collect longitudinal data and cross sectional data on the eleven children with severe to profound

losses who were part of the original Kennedy and Bruininks study. It was deemed advisable to follow these fully integrated pupils for several reasons:

1. to discover whether or not the hearing handicapped children would continue to experience social acceptance within their classrooms equal to that of their hearing peers.

2. to document social-behavioral interactions through systematic classroom observations.

3. to ascertain these children's progress in other educational areas, notably achievement in academic subjects.

The critical variables examined in 1973 were: social acceptance and the observed behaviors of the hearing impaired subjects and their same sex classmates (positive and negative verbal and non-verbal behaviors as directed toward peers, teachers and the total classroom). In 1974 academic ability was a further variable along with social acceptance.

Summary of Longitudinal and Cross Sectional Data 1972 - 1974

Sample

Table 1 gives the average decibel loss, aided average decibel loss, etiology, age of onset and grade level of the eleven severe to profoundly deaf longitudinal subjects. Each of the eleven pupils was enrolled in separate elementary schools in Minneapolis or the surrounding suburbs. All of the hearing impaired children had received preschool training with their parents in the Minneapolis Public School's Infant/Preschool Program for Hearing Impaired Children which included enrollment in nursery schools with normally hearing age mates before integration. All of the subjects were full time hearing aid users; all but one wore binaural aids; all received one hour of tutoring per day and twenty minutes of speech therapy two or three times a week.

(Insert Table 1 here)

In 1972, nine of the hearing impaired subjects were in Grade One, one in Grade Two and one in Grade Three.

Sociometric Tests

Three sociometric tests were administered to all the normally hearing and hearing impaired children each year of the study: one test, the Moreno Peer Nomination Scale, is designed to assess the group status of children who are nominated by their classmates through questions which specify a criterion such as playing, working or sitting together. In a review of other studies, Gronlund (1959) reported high stability for scores obtained from Moreno Tests. Play was selected as the criterion for the longitudinal study, and each child was asked to choose three children in the classroom with whom he would like to play all the time.

The pupils were also given an experimental peer acceptance scale which is a modified version of the Ohio Guidance Tests for Elementary Grades (Bruininks, Rynders and Gross, 1974). The peer acceptance scale was also used to determine the self-perceived status (socioempathy) of all the subjects. It is a forced-choice scale on which every group member rates every other group member in terms of the degree to which he/she wants him/her for a friend. Lilly (1971) obtained a six-week test re-test reliability coefficient of 0.82 using a similar measure with 123 pupils in grades 4, 5, and 6.

Results

Table 2 shows the results from the Moreno peer nomination scale for normally hearing and hearing impaired classmates for 1972 through 1974.

(Insert Table 2 here)

In 1972 there was a significant difference favoring the pupils with severe to

profound losses ($t = 2.39$; $p > .05$). In 1973 these children scored higher than their normal hearing peers, but the difference was not significant. However, in 1974 the hearing impaired group was selected as friends less often than their normal hearing classmates ($t = 2.72$; $p > .01$).

Table 3 gives the mutual choice scores of both hearing and hearing impaired groups. Mutual choices depict classroom relationships are broken and new ones are formed. The Moreno was also used to analyze mutual choices on target diagrams (Northway, 1940).

(Insert Table 3 here)

Mutual choice data revealed that there was a significant difference between the hearing impaired and normally hearing pupils ($t = 2.60$; $p > .01$), but there were no significant differences in the succeeding years.

The sociometric data gathered from the forced-choice peer acceptance scale as shown on Table 4 suggest that the peer acceptance ratings of both the normally hearing and hearing impaired groups were not significantly different during the three years of the longitudinal study.

(Insert Table 4 here)

As noted earlier, socioempathy scores were derived from a separate administration of the forced-choice scale. The data revealed that there was no significant difference between the self perceived status of the longitudinal group and their normally hearing peers. Furthermore, the hearing impaired children were as perceptive as their classmates concerning in-class social status; no significant difference was noted between the attained and self-perceived peer status within either group for three years of the study.

Observed Behavior Study, 1973

McCauley, Bruininks and Kennedy (1975) reported the data collected in 1973 on the observed behavioral interactions of the longitudinal group and their normally hearing classmates. The nonhandicapped children were randomly selected for observation after all children receiving remedial help were eliminated from consideration. A modified version of the Pupil Observation Schedule (Wood, 1972) was used to collect the observational data. Results indicated that the overall quality of behavioral interactions of the hearing impaired children was not quantitatively different from that of their hearing peers as far as positive/negative and verbal/non-verbal behavior directed to peers, teachers and the total classroom group is concerned. However, hearing impaired subjects interacted positively and to a greater degree with teachers than the normally hearing group; and the matched pupils interacted positively and verbally with peers (when a two-tailed t test for independent groups was analyzed it was significant at the .05 level).

(Insert Table 5 here)

These data seem to point to the hearing impaired children relying to a greater extent on their teachers than did the normally hearing subjects as a source of giving and receiving rewarding social interactions in the classroom. On the other hand, for nonhandicapped youngsters the primary source of rewarding social interactions was their peer group.

Achievement Data - 1974

In the Spring of 1974, several language achievement measures (Woodcock Word Recognition; Peabody Individual Achievement Test; Spelling PIAT; Metropolitan Achievement Tests, word knowledge test) and also the Key Math Achievement test were administered to the longitudinal group and a randomly selected, equal sized, paired sample of normally hearing classmates.

(Insert Table 6 here)

No significant differences were found between the two groups except for the MAT word knowledge measure where the normally hearing group scored significantly higher ($t = 3.50$; $p > .001$).

FOLLOW-UP STUDY 1975

The purpose of the follow-up study was twofold:

1. to determine if the social status of the longitudinal group would be different from a group of five first grade moderate to profoundly deaf children.

2. to assess teacher attitudes and perceptions of the hearing impaired children's social and academic functioning.

Sample

The first grade hearing impaired subjects had also attended the Minneapolis Public School's Family Oriented Infant/Preschool Program for Hearing Impaired Children prior to integration into regular kindergarten classrooms. All of them had attended neighborhood nursery schools for two years. In addition, they were part of a readiness for kindergarten nursery two mornings a week. This option of the Minneapolis program evolved from the first year research results and was designed to give hearing impaired children pre-experience with the curriculum used by the schools into which they would be integrated at five years of age. All were full time binaural hearing aid users.

Table 7 depicts the average decibel loss, age of onset and etiology of the five first grade pupils.

(Insert Table 7 here)

Method

The same three sociometric tests (Moreno peer nomination scale, forced-choice acceptance scale and the socioempathy scale) were given to both the first grade and longitudinal subjects and their 419 normally hearing classmates enrolled in sixteen elementary schools.

Results

Table 8 reveals that the first grade deaf children scored higher than the

nonhandicapped and the older longitudinal subjects. However, the difference on the Moreno was not significant.

(Insert Table 8 here)

Table 9 gives the mutual choice data for the three groups.

(Insert Table 9 here)

The mutual choices between the longitudinal and first grade hearing impaired subjects with their normally hearing peers were not significant. When individual mutual choices were plotted on target diagrams, the most mutual choices any child could have was three.

Table 10 shows the means and standard deviations for the forced-choice and socioempathy scales.

(Insert Table 10 here)

Results from the forced-choice scale indicate that there was not a significant difference between the total normally hearing groups and the hearing impaired groups. However, when the scores of the first grade hearing impaired children were compared with the scores of the longitudinal subjects, there was a significant difference ($t = 2.62$; $p > .02$).

Table 10 also gives the results from the socioempathy scale. There was no appreciable difference between the attained and self perceived peer status within either the total hearing impaired groups or the normally hearing groups, but there was a significant difference between the first grade and older deaf pupils ($t = 2.62$; $p > .02$).

Teacher Questionnaire

In addition to the sociometric tests in 1975, sixteen teachers filled out a questionnaire. Eighty-seven percent of the teachers had received an orientation regarding how to work with a hearing impaired child prior to his/her entrance into their classroom. Eighty-four percent indicated that the deaf child did not present any behavioral problems in the class. One teacher specified that the hearing impaired child in her class would probably have functioned without any problems if he had been integrated into a self-contained classroom rather than an open first grade class with 125 other pupils. Her recommendation along with the results from this study achieved a more appropriate placement for the 1975-76 school year.

Parent contact may also have a bearing on successful integration: 43 percent of the parents met with teachers on a monthly basis; 18 percent met weekly; 6 percent conferred every other week, and the rest talked with teachers during specified conference sessions. With supportive help, 94 percent of the teachers agreed that the hearing impaired children were achieving at grade level. All of the children were judged to be functioning socially commeasurate with peers except the child in the open school. Each teacher agreed that he/she had the competencies needed to teach a hearing handicapped youngster as long as there were support services available.

Discussion

The results from the follow-up study and the three previous years indicate that these children with severe to profound hearing impairements (longitudinal and first grade) were as socially accepted as their normally hearing classmates. Although the five first-grade pupils scored higher on all four measures, the only significant differences were with the longitudinal hearing impaired subjects.

In 1972 it was speculated that the reasons the longitudinal subjects scored higher in social acceptance than those with normal hearing might be: (a) that the severe to profoundly deaf group possessed desireable traits and personal competencies for school social success; (b) that the classroom settings might have been optimal for fostering the social integration of handicapped children; and (c) that young nonhandicapped youngsters are more nurturant than older pupils toward hearing impaired classmates and/or the aspects of the preschool program may have enhanced the social acceptability of the eleven children with severe to profound losses compared to the level of social acceptance reported in the earlier studies of Elsner, 1958; Force, 1956; Justman and Maskowitz, 1957; and O'Connor, 1961.

The apparent absence of nurturant attitudes toward the five first grade hearing impaired children may possibly be explained by the supposition that these five children were not regarded as "different" from the total classroom group and did not appear to require any feeling of solicitation from their peers.

Teacher attitudes and competencies may also have influenced the social position of the hearing handicapped children in the regular classroom. These five hearing impaired first graders may not have needed extra time and attention and thus were not treated in any special way by their teachers.

The results from the three-year longitudinal and follow-up study seem to point to a causal relationship between the social status of these sixteen hearing impaired subjects and the preschool program they attended before integration. Early diagnosis, early amplification, early educational intervention with an emphasis on parent involvement and experience with normally hearing peers in neighborhood nursery schools, and early integration into public schools may combine to be the four variables that facilitate the successful assimilation

and psychological acceptance of hearing impaired children during the elementary years.

Further research seems necessary to support the latter assumption that there are four critical variables which may serve as accurate predictors of a reasonable success (social, psychological and academic) for hearing impaired children integrated into regular classes. Such information would also be helpful in evaluating current special education preschool programs and strategies. The functional language skills of hearing impaired children also need to be examined to determine if any differences exist between normally hearing and hearing impaired children in imperative, empathetic and cooperative situations. Such data would be valuable in supporting the construct that communication is an important tool which all children need to acquire mature social relations with age mates.

Table 1

Average Decibel Loss, Aided Average Loss
Etiology and Age of Onset of the
Eleven Longitudinal Pupils

Pupils	Average db loss	Aided db loss	Etiology	Onset	Grade in 72	73	74
Boys							
1	75 db PTA*	26 db PTA	Rubella	Congenital	1	2	3
2	80 db PTA	27 db PTA	Rubella	Congenital	1	2	3
3	88 db PTA	25 db PTA	Rubella	Congenital	1	2	3
4	110 db PTA	45 db PTA	Unknown	Congenital	1	2	3
Girls							
5	76 db PTA	15 db PTA	Rubella	Congenital	1	2	3
6	76 db PTA	23 db PTA	Premature	Congenital	1	2	3
7	85 db PTA	30 db PTA	Rubella	Congenital	1	2	3
8	85 db PTA	28 db PTA	Rubella	Congenital	3	4	5
9	98 db PTA	36 db PTA	Rubella	Congenital	1	2	3
10	110 db PTA	38 db PTA	Unknown	Congenital	2	3	4
11	110 db PTA	63 db PTA	Meningitis	13 months	1	2	3

* Pure Tone Average: 500; 1000; 2000 Hz.

Table 2

Moreno Peer Nomination Scale for
Normally Hearing and Hearing
Impaired Children 1972-74

Hearing Impaired				Normally Hearing		
Year	N	Mean	S.D.	N	Mean	S.D.
1972	11	4.54	3.44	277	2.60	2.41
1973	10*	3.00	2.71	260	2.87	2.36
1974	11	1.18	2.98	298	2.90	2.09

* The data for one classroom were incomplete.

Table 3

Mutual Choice Ratings for Normal
Hearing and Hearing Impaired
Classmates 1972 - 1974

Hearing Impaired				Normally Hearing		
Year	N	Mean	S.D.	N	Mean	S.D.
1972	11	1.81	1.07	277	1.08	.95
1973	10	1.00	1.05	260	1.27	1.16
1974	11	1.00	.78	298	1.36	1.03

Table 4

Forced Choice and Socioempathy Scores for
Hearing Impaired and Hearing Subjects

	Hearing Impaired Subjects						Normally Hearing Subjects				
	Forced Choice			Socioempathy			Forced Choice			Socioempathy	
Year	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	Mean	S.D.
1972	9*	2.21	.35	9	2.00	.33	182	1.94	.33	1.93	.39
1973	10**	1.83	.27	10	1.99	.43	259	1.87	.51	1.77	.27
1974	11	1.81	.38	11	1.80	.28	298	1.88	.32	1.85	.30

* It was not possible to test two classrooms in the urban schools in 1972.

** The data were not complete for one classroom in 1973.

Table 5

Summary of results from
"Behavioral Interactions of Hearing Impaired
Children in Regular Classrooms"[a]

Variable	Significant Group (HI or NH)[b]	Significance Level[c]
Positive interactions		n.s.[d]
Negative interactions		n.s.
Verbal interactions		n.s.
Nonverbal interactions		n.s.
Interactions with teachers	HI > NH	.05
Interactions with peers	NH > HI	.05
Number of peers with whom interacted	NH > HI	.05
Interactions with group		n.s.
Positive interactions		
with teachers	HI > NH	.05
with peers	NH > HI	.05
Negative interactions		
with teachers		n.s.
with peers		n.s.
Verbal interactions		
with teachers	HI > NH	.05
with peers	NH > HI	.01
Nonverbal interactions		
with teachers		n.s.
with peers		n.s.

[a]Journal of Special Education (in press)
[b]HI = Hearing Impaired
NH = Nonhandicapped
[c]Two-tailed t-test for independent groups.
[d]n.s. - nonsignificant

Table 6

Achievement Test Scores of the Same Sex and Hearing Impaired Pupils in 1974

	Hearing Impaired			Normally Hearing		
Measure	N	Mean	S.D.	N	Mean	S.D.
Woodcock word recognition	11	3.37	.71	11	4.53	2.38
PIAT spelling	11	4.41	1.22	11	4.38	1.17
MAT word knowledge	11	3.05	.48	11	4.96	2.18
Key Math	11	3.28	1.47	11	4.13	.99
Total language achievement	11	3.61	.75	11	4.61	1.82
Total achievement	11	3.55	.91	11	4.51	1.55

Table 7

Average Decibel Loss Etiology, Age of Onset of the First Grade Subjects

Pupils	Average Decibel Loss	Etiology	Onset
Boys			
1	60 db PTA	Unknown	Congenital
2	70 db PTA	Unknown	Congenital
3	90 db PTA	Unknown	Congenital
Girls			
4	91 db PTA	Rubella	Congenital
5	110 db PTA	Placenta Abruptio	Congenital

Table 8

Moreno Peer Nomination Scale of First Grade, Longitudinal and Normally Hearing Classmates

Hearing Impaired Groups			Normally Hearing Groups		
N	Mean	S.D.	N	Mean	S.D.
5	3.20	1.92	121	2.66	1.97
11	2.81	1.94	298	2.55	1.95

Table 9

Mutual Choices of Normal Hearing, Longitudinal and First Grade Hearing Impaired Pupils

Hearing Impaired Groups			Normally Hearing Groups		
N	Mean	S.D.	N	Mean	S.D.
5	1.2	.837	121	1.1	.960
11	1.6	.924	298	1.4	1.05

Table 10

Forced Choice and Socioempathy Scores for Normal Hearing and Hearing Impaired Groups of Children

Hearing Impaired Subjects					Normally Hearing Subjects				
Forced Choice			Socioempathy		Forced Choice			Socioempathy	
N	Mean	S.D.	Mean	S.D.	N	Mean	S.D.	Mean	S.D.
5	2.34	.391	2.26	.261	121	2.14	.335	2.16	.331
11	1.90	.263	1.80	.334	298	1.84	.227	1.81	.264